

REMARKS

This is in response to the Office Action dated July 1, 2005. Claims 1-40 are pending.

Claims 13 and 22 stand rejected under Section 112, second paragraph. Claims 13 and 22 have been amended herein to address and overcome any potential issue in this respect. Claims 13 and 22 are respectfully submitted to be clear and definite.

While applicant does not agree with the obviousness-type double patenting rejections, a terminal disclaimer has been filed herewith in order to render the same moot and to expedite prosecution.

Claim 1

Claim 1 stands rejected under 35 U.S.C. Section 103(a) as being allegedly unpatentable over Thomsen (US 6,632,491). This Section 103(a) rejection is respectfully traversed for at least the following reasons.

Claim 1 requires “a first layer comprising silicon nitride located over at least the first IR reflecting layer and the first dielectric layer; a first layer comprising tin oxide located over and contacting the first layer comprising silicon nitride; a first layer comprising zinc oxide located over and contacting the first layer comprising tin oxide, so that the first layer comprising tin oxide is located between and contacting the first layer comprising silicon nitride and the first layer comprising zinc oxide; a second IR reflecting layer comprising silver located over and contacting the first layer comprising zinc oxide.” For example, and without limitation, Fig. 1 of the instant application illustrates a sequence of layers in the intermediate area of the stack comprising: silicon nitride 14/tin oxide 15/zinc oxide 17/silver 19. Claim 1 expressly requires that the first layer comprising tin oxide is located between and contacting the first layer comprising silicon nitride and the first layer comprising zinc oxide. For example, Fig. 1

illustrates tin oxide 15 located between and contacting silicon nitride 14 and zinc oxide 17 immediately below an IR reflecting layer 19. The cited art fails to disclose or suggest this feature.

Thomsen fails to disclose or suggest a layer comprising tin oxide located between and contacting a layer comprising silicon nitride and a layer comprising zinc oxide, where the layer comprising zinc oxide is below and contacting an IR reflecting layer comprising silver. The Office Action admits Thomsen's failure to disclose or suggest this feature. Recognizing this flaw in Thomsen, the Office Action contends at the bottom of page 8 to the top of page 9 that it would have been obvious to have added a layer comprising silicon nitride to Thomsen between Thomsen's silver layer 49 and tin oxide layer 53. This allegation is respectfully traversed for at least the following reasons.

First, the instant specification makes clear that the use of a layer comprising tin oxide located between and contacting a layer comprising silicon nitride and a layer comprising zinc oxide (where the layer comprising zinc oxide is below and contacting an IR reflecting layer comprising silver) provides significant unexpected results. For example, see paragraphs [0010]-[0012], [0026], [0027], [0050]-[0059], and Figs. 1-4, 6 of the instant application. For example and without limitation, Fig. 2 illustrates the unexpectedly improved visible transmission associated with the addition of the layer comprising tin oxide; Fig. 3 illustrates unexpected improvement in b* coloration associated with the addition of the layer comprising tin oxide; Fig. 4 illustrates unexpected improvement in sheet resistance associated with the addition of the layer comprising tin oxide; and Fig. 6 illustrates the unexpected improvement in scratch resistance associated with the addition of the layer comprising tin oxide. This clear evidence of unexpected

results rebuts any alleged prima facie case of obviousness, as made clear in M.P.E.P. Section 2144.08(II)(B.). Thus, the Section 103(a) rejection of claim 1 should be withdrawn.

Second, there is no suggestion or motivation in the art for the alleged modification. The cited art does not disclose or suggest adding a layer comprising silicon nitride to Thomsen between Thomsen's silver layer 49 and tin oxide layer 53. For this second reason, it is again submitted that the Section 103(a) rejection should be withdrawn.

Claim 1 also stands rejected under 35 U.S.C. Section 103(a) as being allegedly unpatentable over Laird (US 2003/0150711) in view of Lingle (US 2002/0064662). This additional Section 103(a) rejection is respectfully traversed for at least the following reasons.

Laird fails to disclose or suggest a layer comprising tin oxide located between and contacting a layer comprising silicon nitride and a layer comprising zinc oxide, where the layer comprising zinc oxide is below and contacting an IR reflecting layer comprising silver. The Office Action admits Laird's failure to disclose or suggest this feature. Recognizing this flaw in Laird, the Office Action contends that it would have been obvious to have added a layer comprising silicon nitride to Laird between Laird's silver layer 49 and tin oxide layer 13. This allegation is respectfully traversed for at least the following reasons.

First, as explained above, it is well settled that the unexpected results associated with the invention of claim 1 rebut any alleged prima facie case of obviousness. See M.P.E.P. Section 2144.08(II)(B.). In particular, the instant specification makes clear that the use of a layer comprising tin oxide located between and contacting a layer comprising silicon nitride and a layer comprising zinc oxide (where the layer comprising zinc oxide is below and contacting an IR reflecting layer comprising silver) provides significant *unexpected results*. For example, see paragraphs [0010]-[0012], [0026], [0027], [0050]-[0059], and Figs. 1-4, 6 of the instant

application. For example and without limitation, Fig. 2 illustrates the unexpectedly improved visible transmission associated with the addition of the layer comprising tin oxide; Fig. 3 illustrates unexpected improvement in b^* coloration associated with the addition of the layer comprising tin oxide; Fig. 4 illustrates unexpected improvement in sheet resistance associated with the addition of the layer comprising tin oxide; and Fig. 6 illustrates the unexpected improvement in scratch resistance associated with the addition of the layer comprising tin oxide. This clear evidence of unexpected results rebuts any alleged prima facie case of obviousness, as made clear in M.P.E.P. Section 2144.08(II)(B.). Thus, this additional Section 103(a) rejection of claim 1 should be withdrawn.

Second, the alleged combination of Laird and Lingle is legally flawed. Laird relates generally to a non-HT product, whereas Lingle's product and haze discussion relates to a HT product. Since Laird relates to a non-HT product, one of ordinary skill in the art would not have looked to the HT technology of Lingle, including haze reduction during HT, for teachings relevant to Laird. In other words, since Laird relates to non-HT and Lingle to HT, one of ordinary skill in the art would not have added Lingle's silicon nitride layer to Laird because Lingle uses this layer to reduce haze during HT (and HT is not an issue in Laird). Again, there is no suggestion or motivation in the art for the alleged modification.

Claims 12 and 36-40

The Section 103(a) rejections of claims 12 and 36-40 based on Thomsen, Laird and/or Lingle are flawed because of the unexpected results discussed above and the incorrect nature of the modification of references discussed above. Thus, these Section 103(a) rejections should also be withdrawn.

Claim 22

Claim 22 stands rejected under Section 102(b) as being allegedly anticipated by each of Boire (US 6,045,896) and Thomsen. This rejection is respectfully traversed for at least the following reasons.

Claim 22 requires that “the coated article is capable of being heat treated for 18 minutes at a furnace temperature of about 650 degrees C without realizing a visible transmission decrease of more than 1% from the 8 minute mark to the 18 minute mark of such heat treatment, measured monolithically.” Boire fails to disclose or suggest this. There is no mention in Boire of anything akin to this. Moreover, Boire’s structure is much different than the example non-limiting structure in the instant specification that is capable of realizing this feature. Accordingly, since Boire fails to disclose or suggest this underlined claimed feature, the anticipation rejection based on Boire should be withdrawn.

Thomsen also fails to disclose or suggest the aforesaid underlined feature of claim 22. There is no mention in Thomsen of anything akin to this. Moreover, Thomsen’s structure is much different than the example non-limiting structure in the instant specification that is capable of realizing this feature. Moreover, Figs. 3-6 of the instant application indicate that Thomsen’s structure is not capable of achieving the aforesaid feature of this claim. Accordingly, since Thomsen fails to disclose or suggest this underlined claimed feature, the anticipation rejection based on Thomsen should be withdrawn.

Claim 30

Claim 30 stands rejected under Section 102(b) as being allegedly anticipated by Thomsen. This rejection is respectfully traversed for at least the following reasons.

Claim 30 requires that “the coated article is capable of being heat treated for 18 minutes at a furnace temperature of about 650 degrees C without realizing a sheet resistance increase of more than 0.1 ohms/square from the 8 minute mark to the 18 minute mark of such heat treatment, measured monolithically.” Thomsen fails to disclose or suggest this. There is no mention in Thomsen of anything akin to this. Moreover, Thomsen’s structure is much different than the example non-limiting structure in the instant specification that is capable of realizing this feature. Moreover, Figs. 3-6 of the instant application indicate that Thomsen’s structure is not capable of achieving the aforesaid feature of this claim. Accordingly, since Thomsen fails to disclose or suggest this underlined claimed feature, the anticipation rejection based on Thomsen should be withdrawn.

Claim 35

Claim 35 stands rejected under Section 102(b) as being allegedly anticipated by Thomsen. This rejection is respectfully traversed for at least the following reasons.

Claim 35 requires “the coated article is capable of being heat treated at a furnace temperature of about 650 degrees C for 12 minutes, and realizing at least one of the following due to such heat treatment: (a) a visible transmission that does not decrease between the 8 and 12 minute marks of such heat treatment; (b) a transmissive b^* value which does not change by more than 0.5 from the 8 minute mark to the 12 minute mark of such heat treatment; and (c) a sheet resistance in units of ohms/square which does not increase from the 8 minute mark to the 12 minute mark of such heat treatment.” Thomsen fails to disclose or suggest this. There is no mention in Thomsen of anything akin to this. Moreover, Thomsen’s structure is much different than the example non-limiting structure in the instant specification that is capable of realizing this feature. Moreover, Figs. 3-6 of the instant application indicate that Thomsen’s structure is

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not capable of achieving the aforesaid feature of this claim. Accordingly, since Thomsen fails to disclose or suggest this underlined claimed feature, the anticipation rejection based on Thomsen should be withdrawn.

It is respectfully requested that all rejections be withdrawn. All claims are in condition for allowance. If any minor matter remains to be resolved, the Examiner is invited to telephone the undersigned with regard to the same.

Respectfully submitted,

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